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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,856	03/30/2004	Yukio Nakano	520.43708X00	2345

24956 7590 04/06/2006

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EXAMINER

CAMPOS, YAIMA

ART UNIT	PAPER NUMBER
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2185

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/811,856

Applicant(s)

NAKANO ET AL.

Examiner

Yaima Campos

Art Unit

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9, and 16-20 is/are allowed.
- 6) ☒ Claim(s) 10-12, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

RESPONSE TO AMENDMENT

1. The examiner acknowledges the applicant's submission of the amendment dated January 30, 2006. At this point claims 1-6, 10-15, 17 and 19-20 have been amended and no claims have been cancelled. There are 20 claims pending in the application; there are 5 independent claims and 15 dependent claims, all of which are ready for examination by the examiner.

I. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

3. **Claims 10-12 and 14-15** are rejected under 35 U.S.C. § 103 as being unpatentable over Wollrath et al. (US 6,519,615) in view of Tremaine (US 6,851,030).

4. As per **claims 10, 12 and 14**, Wollrath discloses "an area management method in a storage management system for managing a storage device for storing data;" as it disclosed that **"the invention generally relates to data processing systems, and more particularly, to**

leasing storage in data processing systems” (Column 2, lines 35-37)]. This method, as described by Wollrath encompasses any kind of program requesting memory resources to a memory manager; therefore, Wollrath discloses memory allocation/deallocation for “database reediting processing,” as described by applicant. [With respect to this limitation, Wollrath discloses that “a program (the client) requests a lease from the file system manager (the server) to access the group of storage locations for a period of time (the lease period)” (Column 12, lines 33-37); and further specifies that “it is immaterial to the leasing of storage locations what kind of data is contained in the storage locations” (Column 12, 21-22); that “the leasing of storage locations can be applied on different levels of storage, such as database fields, files, blocks of storage, or actual storage locations” (Column 12, lines 23-26) as disclosing that the allocation of storage locations may be done for any kind of processing, including storage management] “holding management information which manages the storage device,” [With respect to this limitation, Wollrath discloses that “method invocation (MI) component” contains “reference component 605” for each reference monitored as a way holding management information of storage devices (Column 9, lines 19-22)] “area assignment information which manages an area assignment state of the storage device,” [With respect to this limitation, Wollrath discloses that “each resource has a unique *handle* by which the resource can be referenced. The handle may be implemented in various ways, such as an address, array index, unique value, pointer, etc.” (Column 2, lines 54-57)]. Wollrath discloses a form of keeping “history information” to decided whether a requested area can be assigned as it is taught that [“The server call processor determines the appropriate grant period based on a number of conditions including the amount of resource required and the number of other grant periods previously granted for the same resource” (Column 7, lines 32-35)]. Wollrath further discloses “obtaining a size of a work area necessary for reediting and an execution time of the reediting processing upon executing the

reediting processing of a database by a database management system; designating an area size and a using period and requesting assignment for temporary use of an area to the storage management system;” [With respect to this limitation, Wollrath discloses a “Lease period algorithm to determine the lease period that should be granted” for a certain storage location and explains that the “lease period algorithm” also considers the “size of the storage locations”(Column 16, lines 9-11 and 13-19). Wollrath also teaches that “the groups of storage locations may have many programs vying for access” (Column 12, lines 20-30)] “when the assignment is requested, determining whether or not the requested area can be assigned” [With respect to this limitation, Wollrath discloses “receiving a request from a caller specifying a storage location and a lease period, determining a lease period during which the caller has access to the specified storage locations” (Column 4, lines 64-67). Wollrath also specifies that “depending on the availability, priority, and other factors, the server either denies the request or grants a lease period. The lease period granted may be either the entire lease period requested or some portion of it” (Column 12, lines 38-42)] “assigning an area with the designated size at the designated period when the area can be assigned as a result of the determination; and setting, as the work area, the area assigned by the storage management system and executing the reediting of the storage management database” [With respect to this limitation, Wollrath discloses that “once the client receives a lease period, the client may access the group of storage locations for the lease period” (Column 12, lines 42-43) and “when an application in the distributed processing system no longer requires a reference to a resource, it informs the MI component managing the resource for that reference so that the resource may be reclaimed for reuse” (Column 7, lines 55-59)]. Wollrath also discloses a method equivalent to “monitoring the using period of the assigned area after assigning a temporarily-used area in the storage management system; and calculating an excess of an area use charge when it is over the using period as result of the monitoring” as [“the

application call processor monitors the application's use of the reference and, either when the application explicitly informs the application call processor that the reference is no longer required or when the application call processor makes this determination on its own, the application call processor sends a clean call to the managing MI (method invocation) component" and further specifies that "Subsequently, the application call processor eliminates the reference from a list of references being used by the application" (Columns 6-7, lines 63-67 and 1-7)].

Wollrath does not disclose expressly the use of "history information for managing a history of area assuring and release and obtaining transition of a used amount of a storage by referring to the history upon receiving an assignment request."

Tremaine discloses the use of "history information for managing a history of area assuring and release and obtaining transition of a used amount of a storage by referring to the history upon receiving an assignment request." [Tremaine discloses "a method and structure for balancing associative resources allocation with respect to load, wherein said resources are allocated/deallocated to requesting processes or *agents* based on their reference history and demand" (Abstract, lines 1-5). Tremaine also discloses that "the invention records a usage history for each of the partitions and reallocates the distribution of the resources within each of the partitions as a function of the usage history" (Column 2, lines 56-59); further specifies that "the recording of the usage history maintains a count for each partition of how frequently resources within the partition are accessed" (Column 2, lines 62-65) and also teaches that "as the buffers are used, the invention tracks the buffer usage within each partition to determine whether the partitions are being underallocated or overallocated buffers. More specifically, the invention tracks buffer usage by maintaining the partition counter that provides a history of which partitions regularly use their buffers and which partitions do not regularly use their buffers" (Column 6, lines 34-40)]. In

addition, Tremaine discloses that [**“the invention is readily applicable to efficient dynamic management of other associative resources within a data processing system” (Column 4, lines 3-4)**] as a way of specifying that memory allocation/deallocation may be done in response to any kind of storage management processing, such as “database reediting” as claimed by Applicant.

(US 6,519,615) by Wollrath et al. and (US 6,851,030) by Tremaine are analogous art because they are form the same field of endeavor of computer memory allocation/deallocation.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the memory allocation/deallocation wherein resources are allocated/deallocated in response to requests as described by Wollrath, further include a feature that considers memory usage history to decided how to allocate/deallocate resources as described by Tremaine.

The motivation for doing so would have been because Tremaine teaches that [**“the invention makes the system more efficient and allows all agents equal access to as many buffers as can be made available depending upon the agents needs and usage histories” (Column 7, lines 32-35); comments that “the invention desires to preclude agents from monopolizing a buffer resource” and also specifies that “the invention desires to provide buffer reallocation when needed, without retrying requests or waiting for periodic re-allocations” (Column 1, lines 59-62)**].

Therefore, it would have been obvious to combine (US 6,851,030) by Tremaine with (US 6,519,615) by Wollrath et al. for the benefit of creating a system/method to optimize the allocation/deallocation of computer memory resources to obtain the invention as specified in claims 10, 12 and 14.

5. As per **claim 11**, the combination of Wollrath and Tremaine discloses “the database reediting processing method according to Claim 10,” [See rejection to claim 10 above] “further comprising the steps of: requesting, to the storage management system release of an area which is unnecessary after executing the reediting processing;” [With respect to this limitation, Wollrath discloses that “when an application in the distributed processing system no longer requires a reference to a resource, it informs the MI component managing the resource for that reference so that the resource may be reclaimed for reuse” (Column 7, lines 55-59)] Wollrath also discloses recording information on the release as when [the resource is released, “the application call processor eliminates the reference from a list of references being used by the application” (Column 7, lines 5-7)]. Tremaine discloses “recording information on the release to the history information upon releasing the area” as [“a small *partition reference* counter is employed for each partition to record its usage history” (Column 2, lines 11-13)].
6. As per **claim 15**, the combination of Wollrath and Tremaine discloses “the area management method according to Claim 14,” [See rejection to claim 14 above] “wherein in order to calculate the excess, the storage management system comprises an account table for managing a user name and a using period of the storage device” [With respect to this limitation, Wollrath discloses that “MI component 600 can include a reference component 605 for each reference monitored” (Figure 6 and Column 9, lines 19-20) and that “reference component 605 preferably constitutes a table or comparable data structure with reference data portions 610, reference count 620, and grant period register 630” (Figure 6 and Column 9, lines 23-25)] “and a charge table for registering at least of an excess for temporary assignment on the storage device” [With respect to this limitation, Wollrath

discloses that once a memory resource is released, “the application call processor eliminates the reference from a list of references being used by the application” (Columns 6-7, lines 63-67 and 1-7) and that “grant period register 630” is used to “determine when to initiate garbage collector 660 to reclaim the corresponding resource” (Column 9, lines 25-29)].

II. ACKNOWLEDGMENT OF ISSUES RAISED BY THE APPLICANT

Response to Amendment

7. Applicant's arguments filed January 30, 2006 have been fully considered and are partly persuasive.

Applicant's arguments, see (Page 20 of Applicant's remarks) referring to a “constantly-assigned area” with respect to claims **1-9, 13 and 16-20** are persuasive; therefore, the rejection of claims **1-9, 13 and 16-20** has been withdrawn.

However, applicant's arguments with respect to claims **10-12 and 14-15** are not persuasive.

8. As required by M.P.E.P. § 707.07(f), a response to these arguments appears below.

a. ARGUMENTS CONCERNING FORMAL MATTERS

9. The applicant's traversal of the formal requirements requested by the examiner are addressed in the following section as required by M.P.E.P. § 707.07(f).

III. ARGUMENTS CONCERNING PRIOR ART REJECTIONS

1st POINT OF ARGUMENT:

10. Regarding the applicant's position that the combination of Wollrath et al. (US 6,519,615) and Tremaine (US 6,851,030) does not teach allocation of storage for "reediting processing," the examiner disagrees and directs applicant's attention to **[Wollrath, Column 12, lines 21-22, 23-26 and 33-37]** where it explained that it is immaterial to the leasing of storage locations what kind of data is contained in the storage locations and that the leasing of storage locations can be applied to different levels of storage for storage management (please note that leasing storage locations for certain time periods comprises temporary allocation of storage); therefore, the invention can be applied to "reediting processing" or to any other type of process requiring/requesting temporary usage of memory resources. Applicant is also directed to **[Wollrath, Column 4, lines 52-56 and Column 8, lines 7-22]** where it is disclosed that storage locations are leased for certain periods of time and when these time-periods expire or the memory locations are no longer required by leaser, garbage collection processing of the memory locations is initiated. Note that garbage collection processing is equivalent to database reediting processing.

11. All arguments by the applicant are believed to be covered in the body of the office action or in the above remarks and thus, this action constitutes a complete response to the issues raised in the remarks dated January 30, 2006.

IV. CLOSING COMMENTS

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. 1.136(a).

A shortened statutory period for reply to this final action is set to expire three months from the mailing date of this action. In the event a first reply is filed within **two months** of the mailing date of this final action and the advisory action is not mailed until after the end of the **three-month** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **six months** from the mailing date of the final action.

V. STATUS OF CLAIMS IN THE APPLICATION

13. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. § 707.07(i):

a(1) SUBJECT MATTER CONSIDERED ALLOWABLE

14. Per the instant office action, claims 1-9, and 16-10 are allowable.

15. Per the instant office action, claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The primary reasons for allowance of claims 1-9, 13 and 16-20 in the instant application is the combination with the inclusion in these claims of the limitation of an area assignment method/system which "calculates the size of a constantly-assigned area of the storage device

previously requested, by referring to the history information.” The prior art of record neither anticipates nor renders obvious the above-recited combination.

a(2) CLAIMS REJECTED IN THE APPLICATION

17. Per the instant office action, claims 10-12 and 14-15 have received a second action on the merits and are subject of a final rejection.

18. For at least the above reasons it is the examiner's position that the applicant's claims are not in condition for allowance.

VI. DIRECTION OF ALL FUTURE REMARKS

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yaima Campos whose telephone number is (571) 272-1232. The examiner can normally be reached on Monday to Friday 8:30 AM to 5:00 PM.

IMPORTANT NOTE

20. If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Donald Sparks, can be reached at the following telephone number: Area Code (571) 272-4201.

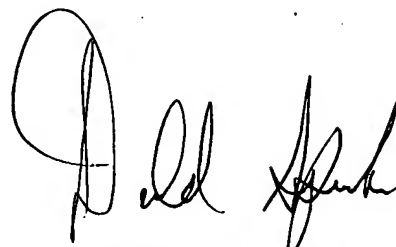
21. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions

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on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 30, 2006

Yaima Campos
Examiner
Art Unit 2185

A handwritten signature in black ink, appearing to read "Donald Sparks", written over a printed name and title.

DONALD SPARKS
SUPERVISORY PATENT EXAMINER